UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northwest Region
7600 Sand Point Way N.E., Bldg. 1
Seattle, WA 98115

Refer to:
2002/01268

March 16, 2004

Mr. Fred P. Patron
Senior Transportation Planning Engineer
Federal Highway Administration, Oregon Division
530 Center Street NE
Salem, Oregon 97301

Re: Endangered Species Act Section 7 Formal Consultation and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation on the Effects of the South Medford Interchange Improvement Project and Bear Creek/Highway 1 (I-5) North and Southbound Bridges Replacement Project, Jackson County, Oregon

Dear Mr. Patron:

Enclosed is a biological opinion (Opinion) pursuant to section 7 of the Endangered Species Act (ESA) prepared by NOAA's National Marine Fisheries Service (NOAA Fisheries), on the effects of funding the proposed South Medford Interchange Improvement Project and Bear Creek/Highway 1 (I-5) Northbound and Southbound Bridges Replacement Project, Jackson County, Oregon. In this Opinion, NOAA Fisheries concludes that the proposed action is not likely to jeopardize the continued existence of ESA-listed Southern Oregon/Northern California Coast coho salmon, or destroy or adversely modify their designated critical habitat. As required by section 7 of the ESA, NOAA Fisheries includes reasonable and prudent measures with nondiscretionary terms and conditions that NOAA Fisheries believes are necessary to minimize the potential for incidental take associated with this action.

This document also serves as consultation on essential fish habitats (EFH) pursuant to section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act (MSA), and includes conservation recommendations to avoid, minimize, or otherwise offset potential adverse effects to EFH. Section 305(b)(4)(B) of the MSA requires Federal agencies to provide a detailed written response to NOAA Fisheries within 30-days after receiving these recommendations. If the response is inconsistent with the recommendations, the action agency must explain why the recommendations will not be followed, including the justification for any disagreements over the effects of the action and the recommendations.

If you have any questions regarding this consultation, please contact Jim Collins of my staff in the Oregon State Habitat Office at 541.957.3389.

Sincerely,

for Michael R Crouse

D. Robert Lohn
Regional Administrator

cc: Molly Cary, ODOT
Ken Cannon, ODOT
Debbie Timms, ODOT
Greg Holthoff, ODOT
Randy Reeve, ODFW

Endangered Species Act - Section 7 Consultation
Biological Opinion

&

Magnuson-Stevens Fishery Conservation and Management Act
Essential Fish Habitat Consultation

South Medford Interchange Improvement Project and
Bear Creek/Highway 1 (I-5) North and Southbound Bridges Replacement Project,
Jackson County, Oregon

Agency:	Federal Highway Administration
Consultation Conducted By:	NOAA's National Marine Fisheries Service, Northwest Region
Date Issued:	March 16, 2004
Issued by:	for Michael R Course _____ D. Robert Lohn Regional Administrator
Refer to:	**2002/01268**

TABLE OF CONTENTS

1. INTRODUCTION

1.1 Consultation History

On October 28, 2002, NOAA's National Marine Fisheries Service (NOAA Fisheries) received a biological assessment (BA) and a request from the Federal Highway Administration (FHWA) for Endangered Species Act (ESA) section 7 formal consultation for funding the South Medford Interchange Improvement (SMI) Project and Bear Creek/Highway 1 (I-5) Northbound and Southbound Bridges Replacement Project. During initial review of the BA, NOAA Fisheries concluded that additional project information was needed to complete consultation. On November 12, 2003, NOAA Fisheries received an updated BA. This biological opinion (Opinion) is based on the information presented in the BA, site visits, and discussions with the applicant. The project area is near the city of Medford, Oregon, along Highway 1 (I-5) at road mile 27.

The FHWA has determined that Southern Oregon/Northern California Coast (SONC) coho salmon (*Oncorhynchus kisutch*) occur within the project area. The SONC coho salmon were listed as threatened under the ESA on May 6, 1997 (62 FR 24588), critical habitat was designated on May 5,1999 (64 FR 24049), and interim protective regulations were issued under section 4(d) of the ESA on July 18, 1997 (62 FR 38479). Critical habitat is designated to include all river reaches accessible to listed coho salmon between Cape Blanco, Oregon, and Punta Gorda, California. Excluded are areas above specific dams or above longstanding, naturally-impassable barriers (*i.e.*, natural waterfalls in existence for at least several hundred years). The FHWA, using methods described in *Making ESA Determinations of Effect for Individual or Grouped Actions at the Watershed Scale* (NMFS 1996), determined that the proposed action is likely to adversely affect SONC coho salmon.

This Opinion is based on the information presented in the BA and developed through correspondence to obtain additional information and clarity. The objective of this Opinion is to determine whether the Oregon Department of Transportation's (ODOT) proposed actions to improve the South Medford Interchange and replace two Interstate 5 (I-5) bridges over Bear Creek are likely to jeopardize the continued existence of SONC coho salmon, or destroy or adversely modify critical habitat. This consultation is undertaken under section 7(a)(2) of the ESA, and its implementing regulations, 50 CFR Part 402.

1.2 Proposed Action

The proposed action is described in two segments. The South Medford Interchange Improvement Project (SMI) and the Bear Creek I-5 Bridges Project are described separately in the proposed action. These two projects are batched together because they are proposed by the same action agency and are within the same action area.

1.2.1 South Medford Interchange Improvement Project

The existing South Medford Interchange is at the Barnett Road Interchange at Exit 27 on I-5 in the City of Medford, Oregon (the City), and serves as one of two points of access between the City and the highway. The facility serves as the south gateway to the City, and it is a key link to future expansion of the City's economic base. Its importance has led to increased use, which has resulted in unacceptable levels of congestion.

The proposed SMI project will involve the construction of a new interchange approximately 1,903 feet south of the existing Barnett Road interchange. The existing Barnett Road overpass of I-5 will be retained, although the existing interchange would be decommissioned and its ramps to I-5 removed. The new interchange will involve a Single Point Urban Interchange (SPUI) bridging of I-5. This type of interchange would concentrate all of the turning movements associated with the facility on the structure rather than distributing them at separate intersections associated with off-ramps and on-ramps or at merging lanes, as are commonly seen along the highway.

To access the interchange, Garfield Street will be extended from the existing intersection of Highway 99 (Hwy 99) and Belknap Road northwest approximately 2,430 feet to the proposed interchange overpass of I-5. Referred to as the Garfield Street Extension, this new roadway will include four lanes with a raised median and exclusive turn lanes at intersections. From Hwy 99, the Garfield Street Extension will extend approximately 0.46 miles northeast to the proposed interchange. From the proposed interchange structure, Highland Drive will be extended approximately 0.26 miles to Barnett Road. The Highland Drive Extension will require new bridge crossings of Bear Creek and Larson Creek. A 6-foot sidewalk and 6-foot bike lane/shoulder are proposed for both sides of the Garfield Street and Highland Extensions. The sidewalks across all bridges will be 7 feet wide.

In addition to the Garfield Street and Highland Drive Extensions, the existing alignment for Center Drive in the southern portion of the project area will be relocated to provide safe and functional spacing between intersections along Garfield Street. The current alignment of Center Drive is too close to the existing Hwy 99 and Belknap Avenue intersection to provide adequate vehicle function. Portions of Center Drive will be modified to provide access to existing development. Credit Union Drive will be modified to reconnect to either Center Drive or an internal access road.

Improvements to Hwy 99 are proposed from the existing Hwy 99/Stewart Avenue intersection south to Charlotte Anne Road, which is approximately 1,230 feet south of the existing Hwy 99/Belknap Road intersection. These improvements include an additional northbound (NB) left turn lane on the south leg of the Stewart/Hwy 99 intersection and an additional southbound (SB) left turn lane on the north leg of the Belknap/Hwy 99 intersection. The turn lane improvements will widen the highway on both sides.

New off-ramps and on-ramps will be constructed to connect with the interchange overpass. A new SB on-ramp to I-5 and a new NB off-ramp from I-5 will be constructed over Bear Creek.

Environmental impacts associated with the SMI project are being evaluated through the National Environmental Policy Act (NEPA) process. A Draft Environmental Impact Statement (DEIS) was completed and distributed for comment in December 2001. The Final Environmental Impact Statement (FEIS) is presently being refined.

Construction of the proposed project will require the installation or replacement of eight bridges within the project area, including four new crossings of Bear Creek or its tributaries. New bridge construction will include the main Garfield Street/Highland Avenue Extension overpass of I-5, a new SB on-ramp to I-5 bridging Bear Creek, a new NB off-ramp from I-5 bridging Bear Creek, and a new NB on-ramp to I-5. The new SB off-ramp from I-5 will be constructed on raised fill. Other new bridges include a new bridge over Bear Creek and Larson Creek in the northern portion of the project area for the Highland Drive Extension. The existing Barnett Road Bridge over Bear Creek and the existing Highland Drive box culvert on Lazy Creek will be replaced.

With the exception of the Lazy Creek crossing, all of the bridges will be constructed with precast concrete beams and cast-in-place concrete decks. The new bridge over Lazy Creek will be a single-span, cast-in-place concrete slab. Foundations for the bridges are all expected to be constructed using drilled shafts and/or steel piles. Three of the 26 new permanent bents will be constructed below the ordinary high water mark (OHWM), while two existing bents and one box culvert will be removed from below the OHWM. In addition, 18 temporary bridge bents will be constructed below the OHWM. Some riprap will be required for scour protection on several of the bridge structures.

1.2.1.1 Garfield Street Bridge over I-5

The proposed bridge carrying Garfield Street over I-5 will form the center of the new interchange. All of the new interchange ramps will be aligned to meet at the top of this bridge. The proposed Garfield Street Bridge will be a single-span, precast-prestressed bridge structure, approximately 136 feet long and 263 feet wide. The top of the proposed bridge structure will be 25 feet above the existing travel lanes of I-5. Retaining walls will be constructed on both the NB and SB approaches of the bridge to allow the ramps to remain as close as possible to I-5, thereby minimizing the overall project footprint, reducing the span length, eliminating the need for a mid-span support, and facilitating this specific type of interchange geometry. The bridge bents and retaining walls will be installed approximately 328 feet from the OHWM of Bear Creek. This phase of the project will take place outside of designated critical habitat.

1.2.1.2 New Interchange Ramps

The new interchange will be constructed approximately 400 feet northwest of where Bear Creek passes under I-5. Construction of the new interchange will require the construction of two off-ramps and two on-ramps to provide full access to I-5. Due to the proposed height of the

interchange and the proximity to Bear Creek, three of the four proposed ramps will be supported by bridge structures. Two of the ramps, the SB on-ramp to I-5 and the NB off-ramp from I-5, will require new bridge crossings of Bear Creek.

The proposed SB on-ramp to I-5 and the proposed NB off-ramp from I-5 will extend southeast from the proposed interchange along the I-5 alignment, crossing over Bear Creek. The proposed ramp bridges will be constructed outside of the existing bridges that carry I-5 over Bear Creek.

Garfield Street Ramp to I-5 SB

The proposed Garfield Street Ramp to I-5 SB over Bear Creek will be a four-span, precast-prestressed bridge structure approximately 417 feet in length. The width of the ramp will taper from 38 feet at its northern end to 33.5 feet at its southern end. The bottom of the bridge will be approximately 13 feet above the OHWM. The proposed ramp will have five bents. One bent, consisting of three drilled shafts, will be constructed below the OHWM of Bear Creek for a total stream bottom disturbance area of approximately 21 square feet. The other four bents for the ramp will be below the 100-year flood elevation of Bear Creek. Two of these bents will be within 6.5 feet of the OHWM.

I-5 NB Ramp to Highland Drive over Bear Creek

The proposed I-5 NB Ramp to Highland Drive over Bear Creek will be a three-span, precast-prestressed bridge structure approximately 361 feet in length. The width of the ramp will vary from 27.6 feet at its southern end (as it exits I-5) to 40.7 feet at its northern end (on the interchange pedestal). The bottom of the bridge will be a minimum of approximately 16 feet above the OHWM. The proposed ramp will have four bents. Two bridge bents will be constructed below the OHWM of Bear Creek, consisting of three drilled shaft piers each, for a total stream bottom disturbance area of 41 feet.[2] The other two bents will be below the 100-year flood elevation of Bear Creek approximately 43 and 62 feet away from the OHWM.

Highland Drive Ramp to I-5 NB

The proposed Highland Drive Ramp to I-5 NB will be a four-span, precast-prestressed bridge structure approximately 604 feet in length. From the interchange pedestal, the width of the ramp bridge will taper from 37 feet to approximately 27 feet at its northern end as it meets the grade for I-5. The proposed ramp will have five bents. None of the bents will be constructed within the OHWM of Bear Creek, although all five bents will be below the 100-year flood elevation of Bear Creek.

1.2.1.3 Highland Drive Extension Bridge over Bear Creek

The proposed Highland Drive Extension will cross over Bear Creek approximately 230 feet north of the proposed interchange pedestal over I-5. The proposed Highland Drive Extension Bridge over Bear Creek will be a three-span, precast-prestressed bridge structure approximately 420 feet long and 144 feet wide. The bottom of the bridge will be a minimum of approximately 26 feet above the OHWM.

The proposed bridge will have a slight curve to the northwest and will consist of four bents. No bents are proposed below the OHWM of Bear Creek. Bent 3 will be at the top of the east bank of Bear Creek and Bent 4 will be halfway between the channel of Bear Creek and the main interchange pedestal over I-5. All four bents of the bridge will be below the 100-year flood elevation of Bear Creek. There should be no in-water work associated with this phase of the project.

1.2.1.4 Highland Drive Extension Bridge over Larson Creek

The proposed Highland Drive Extension Bridge over Larson Creek will be a single-span, precast-prestressed bridge structure approximately 102 feet long and 144 feet wide. The bottom of the bridge will be a minimum of approximately 10 feet above the OHWM. The proposed bridge will consist of two concrete bents. Neither bent will be constructed below the OHWM of Larson Creek, but both will be below the 100-year flood elevation. Both bents will be approximately 23 feet from the OHWM.

The proposed crossing of Larson Creek is a vacant lot with a heavily degraded riparian zone that is sparsely vegetated. There will be relatively little vegetation clearing required during this phase of the project. The proposed bridge will fully span Larson Creek so there will be a minimal amount of in-water work associated with this phase of the project.

1.2.1.5 Lazy Creek Bridge

In the northeastern portion of the project, Lazy Creek flows under Highland Drive through a large concrete box culvert approximately 77 feet long and 15 feet wide. The box culvert was constructed in 1962, and presently constricts the flow in Lazy Creek. During the proposed construction, the existing box culvert will be removed and replaced with a new single-span bridge. The proposed bridge will be approximately 79 feet wide and 33 feet long. The bottom of the bridge will be a minimum of approximately 3 feet above the OHWM. The end bents will be approximately 7 feet outside of the OHWM of Lazy Creek. Removal of the box culvert will remove approximately 785 cubic yards (yd^3) of existing concrete from the OHWM of Lazy Creek.

During bridge construction, streamflow in Lazy Creek will be diverted from the active work area by either temporary piping or sandbag diversions. All bridge construction activities will be constructed from the adjacent roadways. The existing box culvert will likely remain in place during the construction of the new bridge piers, allowing the stream to pass through the active work area undisturbed. Once the bridge piers are completed, the stream will be diverted through piping or sandbags to one side of the culvert and the box culvert will be removed. The removal of the box culvert will be accomplished within two days. Once the box culvert is removed and the disturbed section of the stream channel has been graded and restored, the diversion pipe or sandbags will be removed and streamflow will be re-introduced into the channel.

1.2.1.6 Barnett Road Bridge

The existing Barnett Road Bridge over Bear Creek is a three-span, reinforced concrete deck girder bridge with cantilevered ends. The bridge was constructed in 1948, and widened in 1967. The existing bridge structure is approximately 166 feet long and 61 feet wide. The bridge has two concrete bents that are below the OHWM of Bear Creek. The middle two bent foundations are spread footings set on sandstone bedrock. The end bents of the bridge are outside the OHWM, but below the 100-year flood elevation of Bear Creek.

The proposed replacement bridge will be a single-span structure approximately 170.6 feet long and 98.4 feet wide. The bridge will have two drilled shaft end bents, both of which would be constructed near the top of the existing banks approximately 26 feet outside of the OHWM of Bear Creek, but within the 100-year flood elevation. The bottom of the bridge will be a minimum of approximately 8 feet above the OHWM. The proposed bridge surface will be elevated approximately 6.6 feet above the existing bridge elevation, and a retaining wall will be constructed from the northeast corner of the bridge along the north side of Barnett Road to prevent fill material from encroaching into the adjacent Bear Creek Park as a result of the raised grade of the roadway. The retaining wall will be approximately 6.6 feet in height and will be approximately 79 feet from the OHWM of Bear Creek along Barnett Road to the east of the new bridge. A second retaining wall will be constructed from the northwestern corner of the bridge, running north along the east side of Alba Drive, approximately 39 feet from the OHWM of Bear Creek. Both retaining walls will be used to retain fill from moving onto the adjacent properties.

Demolition of Existing Bridge

The replacement of the Barnett Road Bridge will be one of the last elements of the proposed SMI project to be constructed. To maintain traffic flow in the project area, the majority of the new interchange will be constructed and operational before the Barnett Road Bridge is replaced. During bridge replacement, the bridge will be closed to traffic.

After the bridge is closed, the demolition work on the existing bridge will begin. Appropriate containment measures will be installed to prevent demolition debris or associated waste from entering Bear Creek. The Contractor will begin demolition by removing the bridge deck, beams, and the bridge bents. The bents will either be cut flush to bedrock, or if in an area of alluvial material, cut 2 feet below the stream bottom and backfilled with substrate similar to that existing around the bent.

The two existing bents within the channel will require in-water work isolation. The in-water work area for each bent will be completely isolated from streamflow through the use of sandbags or some other form of diversion structure. The potential disturbance to the creek channel will be limited to the existing footing and surrounding work area of each bent.

Construct New Bridge

The first step in construction of the proposed new bridge will be to excavate the area for the new end bents and wingwalls. This excavation area will be protected with appropriate erosion

control measures. Drilled shafts or steel piles will be installed to bedrock, and the concrete for the pile caps will be poured on top of the piles. The wingwalls will then be constructed and the area behind the wingwalls will be back-filled. Containment measures will be implemented to ensure all "green" concrete is contained within the work area.

Due to the length of the proposed single-span structure, temporary bents will be installed in the channel of Bear Creek to support the bridge beams until the structure has cured and stabilized. The temporary bent structures will be installed in close proximity to the existing bent locations, and the work area for each temporary bent will be isolated from streamflow by an appropriate temporary containment or diversion structure. It is expected that two temporary bents will be installed below the OHWM of Bear Creek. The temporary bents will consist of a maximum of 40 steel pipe piles approximately 16 to 24 inches in diameter supporting a lattice of steel cross beams and longitudinal beams.

Depending on the substrate, the steel pipe piles will either be drilled into place, or placed on spread footings. If the substrate is soft enough, the temporary steel pipe piles for the temporary Barnett Road bridge bents may be drilled into place. Drilling shafts will require that either each shaft location be isolated from flowing water or the entire bent area be isolated.

If the spread footing method of temporary bent construction is chosen, the spread footings will be constructed individually around each pile. A section of corrugated pipe or other material will be placed vertically on the stream bottom, the steel pipe pile placed vertically into the section of pipe, and concrete will be poured into the pipe and allowed to cure. When the concrete is cured, the in-water work area containment could be removed if needed. The steel pipe piles will be removed by pulling them out with a crane that may be equipped with a vibratory device to remove piles that have been drilled into place.

Once the temporary bents are in place, the precast beams will be placed onto the pile caps at the end bents and onto the temporary bents and tied together. Falsework to support the deck and mid-span diaphragm will be constructed and supported on the pre-cast beams. The bridge deck will then be constructed and poured. As needed, new utilities will be mounted or relocated onto the bridge deck. A new stormwater pipe will be placed underneath the bridge deck, between the beams, to carry stormwater to the proposed water quality treatment facility/detention basin just southeast of the bridge.

The construction activity will then move back to the bridge ends. The end panels will be constructed and finally the bridge rails will be constructed and poured. Roadway paving at each end of the bridge will be flared to match the existing roadway width to the new bridge width.

Once the completed bridge has been allowed to cure to specifications, the temporary bents will be completely removed. Any shallow excavations in the areas of the temporary bents will be backfilled with native gravel material from the Bear Creek channel stockpiled from previous excavations. All disturbed soils will be graded and stabilized with native seed and plantings.

Any remaining blackberry thickets will be removed and the disturbed areas will be stabilized with a native seed mix.

During construction, approximately 10 trees with diameters at breast height ranging from 4 to 18 inches will be removed from the north side of the bridge. No tree removal is proposed for the south side of the bridge.

1.2.1.7 Temporary Work Bridges and Access Roads

Three temporary work bridges will be constructed across Bear Creek to facilitate construction of the proposed interchange. The longest of the proposed temporary work bridges will cross Bear Creek at two locations within the southeastern quadrant of the proposed interchange. This temporary structure will be constructed across Bear Creek along the north side of the proposed NB Ramp to the Highland Drive crossing over Bear Creek, to the northeastern corner of the interchange pedestal. The temporary bridge will then angle east along the south side of the proposed Highland Drive Extension Bridge and cross over Bear Creek. The northern terminus of the bridge will potentially connect with Dyer Road, and the southeastern terminus will connect with the roadway embankment along the NB lanes of I-5. The second temporary work bridge over Bear Creek will be constructed along the south side of the proposed Garfield Street Ramp to I-5 SB. This bridge will be accessed from the open fields on the west side of Bear Creek. The third temporary work bridge will be constructed over Larson Creek on the west side of the proposed Highland Drive Bridge over Larson Creek.

Construction of the temporary work bridges will likely occur before the earlier phases of construction. The proposed temporary work bridges will be constructed of steel pipe piles supporting a lattice of steel cross beams and longitudinal beams that are topped with a sealed wood deck. The work bridges will likely be composed of pre-constructed panels or spans a minimum of approximately 40 feet in length. The panels will be arranged in a manner to minimize the number of piles within the OHWM. Assuming minimum spans of 40 feet, it is estimated that 104 piles will be installed below the OHWM. In those areas of the channel where bedrock is shallow or exposed, the steel piles will need to be anchored on small concrete spread footings or drilled into the stream bottom. The width of the temporary work bridges will vary from 20 to 33 feet. Construction of the temporary work bridges will occur during the in-water work period, June 15 to September 15. It is anticipated that 18 in-water work isolation areas will have to be constructed to facilitate the installation of the temporary pipe piles used to construct the temporary bridges.

1.2.1.8 New Impervious Surfaces and Stormwater Management

The proposed project will result in a net increase of approximately 16.3 acres of impervious surface. A total of approximately 35 acres of impervious surface will be treated by the project, while removing approximately 4.9 acres of previously existing impervious surface. The majority of the impervious surfaces that will be created during the project will result from construction of the Garfield Street Extension from Highway 99 to the I-5 interchange and construction of the

Highland Drive Extension from the interchange north to the Barnett Road intersection. Construction of the interchange ramps and the widening of Highland Drive will also add net new impervious surfaces. The removal of existing impervious surfaces would largely occur as the result of abandoning the existing Barnett Road interchange. All of the existing on- and off-ramps to I-5 at this interchange would be decommissioned, removed, and restored to more natural conditions, although a proposed water quality treatment/detention facility will be in the southeast quadrant of the existing interchange. A small portion at the southern end of Center Drive will be removed when it is realigned to meet the Garfield Street Extension.

Stormwater from the project area will be treated by two proposed water quality treatment and detention facilities and one water quality swale. The water quality treatment and detention facilities and the water quality swale will treat the majority of stormwater runoff generated by impervious surfaces within the project area. The detention basins and the water quality swale will treat runoff from approximately half of the existing impervious surfaces within the project area, which is estimated at 18.8 acres. Stormwater leaving these existing impervious surfaces is currently being discharged into Bear Creek without prior treatment.

The first water treatment and detention facilities will be near the southeastern corner of the existing bridge carrying I-5 over Bear Creek and be approximately 26,909 square feet (ft^2) in size. The second facility will be in the northern portion of project in the southeast quadrant of the existing intersection of I-5 and Barnett Road and will be 41,979 ft^2. This facility will be west of Bear Creek in the area where the existing NB off-ramp and on-ramp to I-5 will be abandoned.

In addition to the two water quality treatment and detention facilities, ODOT is proposing to construct a grassed water quality swale along the east side of the NB lanes of I-5 on the south side of Bear Creek. This water quality swale will collect and treat stormwater originating from the proposed NB off-ramp and SB on-ramp south of Bear Creek and portions of existing I-5 south of the existing I-5 bridges. The swale will be approximately 360 feet long and 5 feet wide, with a slope of 0.5% to 0.75%. Both water quality treatment and detention facility, as well as the vegetated swale, will have energy dissipating outfall pads above the OHWM of Bear Creek. Each outfall pad will be constructed of approximately 100 $yd^3$of class 50 riprap.

Due to topography, the stormwater from the section of Highway 99 north of the Garfield Street will not be directed to the proposed southern detention basin for treatment. Instead, stormwater will continue to drain along existing contours to an unnamed tributary of Bear Creek that is piped northeast under existing commercial development and Barnett Road to Bear Creek. This section of Highway 99 accounts for approximately 0.6 acres of new impervious surface, although the majority of this area is highly compacted dirt and rock.

1.2.2 Bear Creek I-5 Bridges Project

The Bear Creek I-5 North and Southbound Bridges Replacement project proposes to demolish and reconstruct the existing I-5 bridges over Bear Creek in Medford, Oregon. These bridges are near MP 27.09 on I-5, approximately 2,203 feet south of the existing Barnett Road Interchange,

and are within the southern portion of the SMI project area. Although the SMI project is considered by ODOT to be a separate project from the replacement of the existing I-5 bridges, the proposed SB on-ramp and NB off-ramp bridges for the SMI project would be constructed immediately beside the existing I-5 bridges to be replaced.

The existing NB I-5 bridge over Bear Creek is a six-span structure, approximately 327 feet long and 35.2 feet wide. The existing SB I-5 bridge is a five-span structure, approximately 312 feet long and 35.2 feet wide. Both bridges consist of a cast-in-place reinforced concrete deck that provides two lanes of vehicle travel. Stormwater runoff is discharged directly into Bear Creek and the adjacent floodplain by a series of scuppers. There is no detention or treatment of stormwater from the bridge decks or approaches. The NB I-5 bridge has one bent at the edge of the OHWM of Bear Creek and is usually within flowing water most of the year. The other six bents are all within the 100-year flood elevation. The SB I-5 bridge also has one bent below the OHWM of Bear Creek. The other five bents are also all within the 100-year flood elevation. The north and south end bents for both bridges are protected by large volumes of riprap that are keyed into a toe trench.

1.2.2.1 Temporary Detour and Work Bridges

Sequencing of the proposed I-5 bridge replacement process will be initiated by the construction of a temporary detour structure west of the existing SB I-5 bridge. Construction of the temporary detour structure will require the placement of temporary bridge bents within the Bear Creek channel. Next, a temporary work bridge will be constructed between the existing NB and SB I-5 bridges. The temporary work bridge will be approximately 345 feet long and 20 to 33 feet wide. This bridge will be accessed from the median of I-5. This action will also require temporary bridge bents and in-water work within Bear Creek. Between the detour and temporary work bridges, approximately 11 bents supported by 44 steel pipes will be installed below the OHWM. Due to the shallow nature of the bedrock, the temporary pile will either be attached to temporary spread footings or placed in drilled holes.

1.2.2.2 Bridge Demolition

The Contractor will likely remove the existing bridge in pieces that are as large as possible. A crane will be attached to a section of the deck and that section will be cut free from the structure, then lifted to a staging area to be in the median at the south end of the bridge. The bridge section may be cut with a concrete saw or by hoe ram. If a hoe ram is used to break up the concrete, then the internal rebar will be cut afterwards with a torch or by another method. All debris will be contained and prevented from entering the waterway below.

Two bents will be removed from below the OHWM of Bear Creek during the demolition of the NB and SB bridges. The bents will either be cut flush to bedrock, or if in an area of alluvial material, cut at least 2 feet below the stream bottom and backfilled with substrate similar to that which exists around the bent. Given their location in or beside the Bear Creek channel, the work

area for each bent to be removed from the OHWM will require in-water work isolation. The in-water work area for each bent will be completely isolated from the active flowing stream.

1.2.2.3 Bear Creek I-5 Bridges

The proposed Bear Creek I-5 NB replacement bridge will be a four-span bridge, approximately 351 feet long and 55 feet wide. The bottom of the bridge will be a minimum of approximately 11 feet above the OHWM. The bridge will consist of three multi-column interior drilled shaft bents to support the bridge deck, all of which will be above the OHWM for Bear Creek. The proposed NB bridge will be slightly wider than the proposed SB bridge to accommodate the existing condition of two NB travel lanes with standard shoulder widths, and to allow for the potential future re-alignment of the NB I-5 travel lanes.

The proposed Bear Creek I-5 SB replacement bridge will be a three-span structure approximately 315 feet long and 47 feet wide. The bottom of the bridge will be a minimum of approximately 8 feet above the OHWM. Two of the proposed multi-column bents will be below the OHWM for a total stream bottom disturbance area of approximately 92 ft^2. Similar to the NB bridge, all of the bridge bents will be constructed on drilled shafts.

Riprap will be required at both end bents to protect the bridge bents and adjacent fill slope from scour. Approximately 8,622 yd^3 of riprap would be removed from the banks around the existing bridges. Approximately 104 yd^3 of riprap would be required at both end bents of the new bridges to protect the bridge bents and adjacent fill slope from scour. This will result in a net decrease of 8,518 yd^3.

1.2.2.4 New Impervious Surfaces and Stormwater Management

The stormwater from the existing bridges is discharged directly into Bear Creek without prior treatment or detention. The stormwater originating from the bridges over the north half of Bear Creek will be conveyed to the southern water quality treatment and detention facility, while stormwater from the southern half of the bridges will be routed to the water quality swale.

2. ENDANGERED SPECIES ACT

2.1 Biological Opinion

2.1.1 Biological Information

The action area is defined by NOAA Fisheries regulations (50 CFR 402) as "all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action." The action area is Bear Creek from work area downstream to the Rogue River. In addition the action area also includes both Lazy and Larson Creek, which are tributaries of Bear

Creek. The action area extends up Lazy Creek from the mouth to Highland Drive, and Larson Creek from the mouth to the Highland Drive extension.

Essential habitat features for salmonids are: Substrate, water quality, water quantity, water temperature, water velocity, cover/shelter, food (juvenile only), riparian vegetation, space, and safe passage conditions. The proposed action may affect the essential habitat features of water quality, riparian vegetation and substrate. Bear Creek within the action area serves as a migration, rearing and potentially spawning area for SONC coho salmon. Lazy and Larson Creek within the action area serves as a migration and rearing area for SONC coho salmon.

2.1.2 Evaluating Proposed Actions

The standards for determining jeopardy are set forth in section 7(a)(2) of the ESA as defined by 50 CFR Part 402. NOAA Fisheries must determine whether the action is likely to jeopardize the listed species and/or whether the action is likely to destroy or adversely modify critical habitat. This analysis involves the initial steps of: (1) Defining the biological requirements and current status of the listed species; and (2) evaluating the relevance of the environmental baseline to the species' current status.

Subsequently, NOAA Fisheries evaluates whether the action is likely to jeopardize the listed species by determining if the species can be expected to survive with an adequate potential for recovery. In making this determination, NOAA Fisheries must consider the estimated level of mortality attributable to: (1) Collective effects of the proposed or continuing action; (2) the environmental baseline; and (3) any cumulative effects. If NOAA Fisheries finds that the action is likely to jeopardize the listed species, NOAA Fisheries must identify reasonable and prudent alternatives for the action.

For the proposed action, NOAA Fisheries' jeopardy analysis considers direct or indirect mortality of fish attributable to the action. NOAA Fisheries' analysis considers the extent to which the proposed action impairs the function of essential elements necessary for migration, spawning, and rearing of SONC coho salmon under the existing environmental baseline.

2.1.2.1 Biological Requirements

The first step in the methods NOAA Fisheries uses for applying the ESA section 7(a)(2) to listed salmonids is to define the species' biological requirements that are most relevant to each consultation. NOAA Fisheries also considers the current status of the listed species, taking into account population size, trends, distribution and genetic diversity. To assess the current status of the listed species, NOAA Fisheries starts with the determinations made in its decision to list the species for ESA protection and also considers new data available that is relevant to the determination.

The relevant biological requirements are those necessary for the listed species to survive and recover to a naturally-reproducing population level, at which time protection under the ESA

would become unnecessary. Adequate population levels must safeguard the genetic diversity of the listed stock, enhance its capacity to adapt to various environmental conditions, and allow it to become self-sustaining in the natural environment.

For this consultation, the biological requirements are improved habitat characteristics that function to support successful rearing and migration. The current status of the listed species, based upon their risk of extinction, has not significantly improved since the species were listed.

2.1.2.2 Environmental Baseline

In step two of NOAA Fisheries' analysis, we evaluate the relevance of the environmental baseline in the action area. Regulations implementing section 7 of the ESA (50 CFR 402.02) define the environmental baseline as the past and present effects of all Federal, state, or private actions and other human activities in the action area. The environmental baseline also includes the anticipated effects of all proposed Federal projects in the action area that have undergone section 7 consultation, and the effects of state and private actions that are contemporaneous with the consultation in progress.

Land uses in the action area include rural, residential, agricultural, commercial, and industrial. Riparian areas and stream channels in the action area have been damaged by development activities related to these land uses. The current range-wide status of the identified evolutionarily significant unit may be found in Nickelson *et al.* (1992) and Weitkamp *et al.* (1995). The identified action will occur within the range of SONC coho salmon. The action area is the area directly and indirectly affected by the action. The direct effects occur at the project site and may extend upstream or downstream based on the potential for impairing fish passage, hydraulics, sediment and pollutant discharge, and the extent of riparian habitat modifications. Indirect effects may occur throughout the watershed where actions described in this Opinion lead to additional activities or affect ecological functions contributing to stream degradation. For the purposes of this Opinion, the action area is the channel and adjacent riparian area 500 feet upstream from the project site and downstream to the confluence with the Rogue River. Temporary indirect impacts (disruption of primary productivity and food resources) and potential direct affects (sediment, pollutant discharge and hydraulics) to Bear Creek will be caused by the in-water work and general riparian and bank disturbance within the project area.

The dominant land use in the Bear Creek watershed is private agriculture and urban development. Bear Creek is water-deficient, primarily due to the seasonal pattern of rainfall and the demand for water for urban and irrigation use. There are six reservoirs in use in the Bear Creek basin. Scattered temporary push-up dams are constructed during the irrigation season, increasing water diversion and disrupting fish movement and other ecological processes. Various water quality monitoring within Bear Creek by Oregon's Department of Environmental Quality shows degraded water quality regarding temperatures, biological oxygen demand, dissolved oxygen, ammonia, sediment and pH levels.

Based on the best available information regarding the current status of SONC coho salmon range-wide, the population status, trends, genetics, and the poor environmental baseline conditions within the action area, NOAA Fisheries concludes that the biological requirements of SONC coho salmon are not currently being met. Degraded habitat, resulting from agricultural practices, forestry practices, road building, and residential construction, indicate many aquatic habitat indicators are not properly functioning within Bear Creek. Actions that do not maintain or restore properly functioning aquatic habitat conditions would be likely to jeopardize the continued existence of SONC coho salmon.

2.1.3 Analysis of Effects

Analysis of effects includes assessing direct, indirect, beneficial, and cumulative effects. Temporary indirect effects (disruption of primary productivity and food resources) and potential direct affects (sediment, pollutant discharge and changes in hydraulics) to Bear Creek will be caused by the in-water work and general riparian and bank disturbance within the project area. An additional direct effect to SONC coho salmon juveniles may occur from the capture, handling, and relocation of individuals during the in-water work. Beneficial effects may include the removal of concrete and riprap from the stream.

2.1.3.1 Effects of the Proposed Action

Creeks and rivers are dynamic systems that naturally alter their courses in response to many physical processes. Roadways and other structures constructed along waterways are subject to flooding and undercutting as a result of these natural changes in the stream course. Structural hardening of embankments is the traditional means of protecting these structures along waterways. Hardened embankments simplify stream channels, alter hydraulic processes, and prevent natural channel adjustments (Spence *et al.* 1996). Moreover, embankment hardening may shift the erosion point either upstream or downstream of the project and accelerate stream velocity. As amplified erosive forces attack different locations and landowners respond with more bank hardening, the river eventually attains a continuous fixed alignment lacking habitat complexity (COE 1977).

Fish habitats are enhanced by diversity of habitats at the land-water interface and adjacent bank (COE 1977). Streamside vegetation provides shade that reduces water temperature and stabilizes streambanks. Overhanging branches provide cover from predators. Insects and other invertebrates that fall from overhanging branches may be preyed on by fish, or provide food sources for other prey organisms. Immersed vegetation, logs, and root wads provide points of attachment for aquatic prey organisms, shelter from swift currents during high flows, retain bed load sediment, create pools, and reduce flow velocity.

The combination of channel confinement, ground water alteration, riparian degradation and the legacy of large woody material removal within the system and specifically at roadway crossings has simplified the habitat within the action area and retarded the formation and maintenance of complex fish habitat within the project reach.

Sedimentation

Potential impacts to listed salmonids from the proposed action include both direct and indirect effects. Potential direct effects include mortality from exposure to suspended sediments (turbidity) and contaminants resulting from ground disturbance and general construction activities. Potential indirect effects include behavioral changes resulting from elevated turbidity level (Berg and Northcote 1985, Whitman *et al.* 1982), during riverbank habitat alterations.

Suspended sediment and turbidity influences on fish reported in the literature range from beneficial to detrimental. Elevated total suspended solids (TSS) levels have been reported to enhance cover conditions, reduce piscivorous bird predation rates, and improve survival. Elevated TSS conditions have also been reported to cause physiological stress, reduce growth, and adversely affect survival. Of key importance in considering the detrimental effects of TSS on fish is the frequency and the duration of the exposure, not just the TSS concentration.

Behavioral avoidance of turbid waters may be one of the most important effects of suspended sediments (DeVore *et al.* 1980, Scannell 1988). Salmonids have been observed to move laterally and downstream to avoid turbid plumes (Lloyd 1987, Scannell 1988, Servizi and Martens 1991). Juvenile salmonids tend to avoid streams that are chronically turbid, such as glacial streams or those disturbed by human activities, unless the fish need to traverse these streams along migration routes (Lloyd *et al.* 1987). In addition, a potentially positive reported effect is providing refuge and cover from predation (Gregory and Levings 1998).

Fish that remain in turbid waters (elevated TSS concentration), experience a reduction in predation from piscivorous fish and birds (Gregory and Levings 1998). In systems with intense predation pressure, this provides a beneficial trade off (*e.g.*, enhanced survival) to the cost of potential physical effects (*e.g.*, reduced growth). Turbidity levels of about 23 Nephalometric Turbidity Units (NTU) have been found to minimize bird and fish predation risks (Gregory 1993). Exposure duration is a critical determinant of the occurrence and importance of physical or behavioral effects. Salmonids have evolved in systems that periodically experience short-term pulses (days to weeks) of high suspended sediment loads, often associated with flood events, and are adapted to such high pulse exposures. Adult and larger juvenile salmonids may be little affected by the high concentrations of suspended sediments that occur during storm and snowmelt runoff episodes (Bjornn and Reiser 1991). However, research shows that chronic exposure can cause physiological stress responses that can increase maintenance energy and reduce feeding and growth (Redding *et al.* 1987, Lloyd 1987, Servizi and Martens 1991).

Turbidity, at moderate levels, has the potential to adversely affect primary and secondary productivity, and at high levels, has the potential to injure and kill adult and juvenile fish, and may also interfere with feeding (Spence *et al.* 1996). Newly-emerged salmonid fry may be vulnerable to even moderate amounts of turbidity (Bjornn and Reiser 1991). Other behavioral effects on fish, such as gill flaring and feeding changes, have been observed in response to pulses of suspended sediment (Berg and Northcote 1985). Fine, redeposited sediments also have the potential to adversely affect primary and secondary productivity (Spence *et al.* 1996), and to reduce incubation success (Bell 1991) and cover for juvenile salmonids (Bjornn and Reiser

1991). Because the potential for turbidity should be localized and brief, the probability of direct mortality is negligible.

To minimize the potential for increased turbidity and disturbance of fish, most in-water work will occur during the preferred in-water work timing guideline. During this window, streamflows are typically low, fish presence is reduced, and rainfall is minimal. Erosion and sediment control devices will be deployed within 100 feet of all waterways and will stay in place until the project area is stabilized.

Chemical Contamination

As with all construction activities, accidental release of fuel, oil, and other contaminants may occur. Operation of back-hoes, excavators, and other equipment requires the use of fuel, lubricants, *etc.*, which, if spilled into the channel of a waterbody or into the adjacent riparian zone, can injure or kill aquatic organisms. Petroleum-based contaminants, such as fuel, oil, and some hydraulic fluids, contain poly-cyclic aromatic hydrocarbons (PAHs), which can be acutely toxic to salmonids at high levels of exposure and can also cause chronic lethal and acute and chronic sublethal effects to aquatic organisms (Neff 1985). Similarly, exposure to herbicides can have lethal and sublethal effects on salmonids, aquatic invertebrates, aquatic vegetation, and target and non-target riparian vegetation (Spence *et al.* 1996). Exposure to water contaminated with runoff contacting green concrete and the associated changes in water chemistry also can have lethal and sublethal effects on salmonids, aquatic invertebrates, aquatic vegetation, and target and non-target riparian vegetation.

To minimize the potential for chemical contamination and disturbance of fish, most in-water work would be completed during the recommended in-water work period. During this window, streamflow is typically low, fish presence is reduced, and rainfall is minimal. In-water work area isolation would allow the work to occur in the dry, thereby reducing indirect (chemical contaminants) from entering the actively flowing water and direct impacts to fish. Staging areas would be in areas that have already been previously disturbed. Equipment and vehicle staging and storage will be at least 150 feet from the regulated work area. Fuels and other hazardous materials will be at least 300 feet away from the regulated work area.

Stream Hydraulics

The placement of drilled shaft bridge piers and riprap placement below the OHWM of Bear Creek would typically result in simplification of habitat and increased stream velocities under and along the structure and hard points. Due to the removal of approximately 8,518 yd^2 of riprap around the existing Bear Creek I-5 bridges, which has degraded stream hydraulics and is devoid of functional riparian vegetation, aquatic and riparian habitat is expected to improve. Since increased habitat complexity and bankline function are expected, no long-term adverse affect is likely to occur to stream hydraulics as a result of the proposed action.

Riparian Vegetation

The removal of some, mostly non-native invasive species of riparian vegetation, such as Himalayan blackberries and some native riparian vegetation, will result in the short-term

potential for exposed soils and increased sediment transport to Bear Creek. However, during construction, extensive erosion control measures and the proposed riparian plantings will result in long-term beneficial effects to the Bear Creek riparian corridor. Riparian plantings will provide erosion control, bank stabilization, shading, allochthonous inputs, and increase the potential for insect production.

Hydrologic Stormwater Effects

The potential exists for reduced evapotransporation and infiltration opportunities resulting in an increase in the magnitude and duration of peak discharge and decreased summer base flow from the proposed 16.3 acres of new impervious surface (Booth and Jackson 1997). The proposed stormwater treatment and detention basins, vegetated swale, and riparian plantings are designed to provide detention and treatment for a total of 35 acres of impervious surface within the project area. The proposed detention and treatment facilities are designed so that the post-project stormwater flows from the project area will not exceed peak pre-construction flow rates for the 2, 10 and 50-year storm events. In addition to detention, the stormwater facilities are designed to remove approximately 90% of the total suspended solids.

The proposed stormwater measures will help to attenuate peak flows through filtration, infiltration, and evapotransporation of stormwater runoff from new and existing impervious surfaces. The proposed stormwater runoff treatment measures, coupled with the avoidance and minimization of potential stormwater effects along Bear Creek will offset any potential adverse effects to Bear Creek's annual hydrograph from the proposed action, therefore meeting NOAA Fisheries, Northwest Region, Habitat Conservation Division Stormwater Guidance.

Work Area Isolation

Temporary and permanent bridge bent construction and removal will likely require work area isolation from the flowing water. Fish removal activities would be in accordance with NOAA Fisheries fish handling guidelines (NOAA Fisheries 2000). Any listed fish removed from the isolated work areas would experience high stress with the possibility of up to a 5% delayed mortality rate depending on rescue method. Work area isolation can result in a loss of aquatic invertebrates due to dewatering areas within the wetted channel. In addition, sediment laden water created within isolated work areas could escape, resulting in impacts to the aquatic environment downstream of the project site.

2.1.3.2 Effects on Critical Habitat

NOAA Fisheries designates critical habitat based on physical and biological features that are essential to the listed species. Essential features for designated critical habitat include substrate, water quality, water quantity, water temperature, food, riparian vegetation, access, water velocity, space and safe passage. Effects on critical habitat from the proposed action are included in the effects description above in section 2.1.3.1 of this Opinion.

2.1.3.3 Cumulative Effects

Cumulative effects are defined in 50 CFR 402.02 as "those effects of future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation". The action area has been defined as the streambed and streambank of Bear and Coleman Creeks, extending upstream to the project disturbance limits, and downstream one mile below the project disturbance limits. Many actions occur within the action area of the Bear Creek watershed.

Non-federal activities within the action area are expected to increase with a projected 40% increase in human population over the next 25 years in Jackson County (U.S. Census Bureau, 2002). Thus, NOAA Fisheries assumes that future private and state actions will continue within the action area, but at increasingly higher levels as population density increases. NOAA Fisheries assumes that future FHWA transportation projects in the Bear Creek watershed will be reviewed through separate section 7 consultation processes and therefore are not considered cumulative effects.

2.1.4 Conclusion

NOAA Fisheries has determined that, when the effects of the FHWA's proposed actions are added to the environmental baseline and cumulative effects occurring in the action area, they are not likely to jeopardize the continued existence of SONC coho salmon, or cause adverse modification or destruction of designated critical habitat. These conclusions were based on the following considerations: (1) All in-water work and other construction activities within the OHWM of Bear, Lazy and Larson Creek will take place according to recommended in-water work timelines or during approved exceptions, to protect fish and wildlife resources; (2) to the greatest extent possible, all sediment-laden water and water contaminated by contact with green concrete or other construction-related contaminants will be contained and treated before contact with flowing waters; (3) any riparian trees removed as a result of the proposed action will be retained within the riparian area, and where feasible, the rootwads will remain attached and the trees will be placed partially into the channel of Bear Creek; (4) work area isolation, where necessary, including use of NOAA Fisheries' guidelines for proper fish handling (NMFS 2000) and other conservation measures will be in place to avoid or minimize adverse affects to water quality; (5) riparian vegetation cleared for access and construction and scour protection measures will be more than offset by the native riparian plantings; (6) stormwater generated from new impervious surfaces will not result in long-term adverse effects to Bear Creek; (7) bridge piers, and scour protection measures will not result in long-term adverse effects to Bear Creek hydraulics; and (8) removal of 8,518 yd^2 of riprap from the Bear Creek channel will result in beneficial responses in the stream channel flow dynamics and riparian vegetation conditions. Therefore, the proposed action is not expected to prevent or delay the achievement of properly functioning habitat conditions in the action area.

2.1.5 Reinitiation of Consultation

Consultation must be reinitiated if: (1) The amount or extent of taking specified in the incidental take statement is exceeded, or is expected to be exceeded; (2) new information reveals that effects of the action may affect listed species in a way not previously considered; (3) the action is modified in a way that causes an effect on listed species that was not previously considered; or (4) a new species is listed or critical habitat is designated that may be affected by the action (50 CFR 402.16). In instances where the amount or extent of authorized incidental take is exceeded, any operations causing such take must cease pending reinitiation of consultation.

2.2 Incidental Take Statement

The ESA at section 9 [16 USC 1538] prohibits take of endangered species. The prohibition of take is extended to threatened anadromous salmonids by section 4(d) rule [50 CFR 223.203]. Take is defined by the statute as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." [16 USC 1532(19)] Harm is defined by regulation as "an act which actually kills or injures fish or wildlife. Such an act may include significant habitat modification or degradation which actually kills or injures fish or wildlife by significantly impairing essential behavior patterns, including, breeding, spawning, rearing, migrating, feeding or sheltering." [50 CFR 222.102] Harass is defined as "an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering." [50 CFR 17.3] Incidental take is defined as "takings that result from, but are not the purpose of, carrying out an otherwise lawful activity conducted by the Federal agency or applicant." [50 CFR 402.02] The ESA at section 7(o)(2) removes the prohibition from any incidental taking that is in compliance with the terms and conditions specified in a section 7(b)(4) incidental take statement [16 USC 1536].

An incidental take statement specifies the impact of any incidental taking of threatened species. It also provides reasonable and prudent measures that are necessary to minimize impacts and sets forth terms and conditions with which the action agency must comply to implement the reasonable and prudent measures.

2.2.1 Amount or Extent of the Take

NOAA Fisheries anticipates that the actions covered by this Opinion are reasonably certain to result in incidental take of SONC coho salmon because of potential adverse effects from increased sediment levels, chemical contamination, instream riprap placement and the potential for direct incidental take during in-water work. Handling of juvenile coho salmon during the work isolation process may result in incidental take of individuals if adequate water quality allows juvenile salmonids to be present during the construction period. NOAA Fisheries anticipates up to 50 individuals will be captured and three juvenile coho salmon will die as a result of the fish rescue, salvage and relocation activities covered by this Opinion. The potential adverse effects of the other project components on population levels are largely unquantifiable,

but small because habitat value in the action area is low, and NOAA Fisheries does not expect them to be measurable in the long term. The extent of authorized take is limited to SONC coho salmon in Bear, Larson, or Lazy Creeks and is limited to that caused by the proposed action within the action area.

2.2.2 Reasonable and Prudent Measures

The measures described below are non-discretionary. They must be implemented so that they become binding conditions in order for the exemption in section 7(a)(2) to apply. The FHWA has the continuing duty to regulate the activities covered in this incidental take statement. If the FHWA fails to require ODOT to adhere to the terms and conditions of the incidental take statement through enforceable terms added to the document authorizing this action, or fails to retain the oversight to ensure compliance with these terms and conditions, the protective coverage of section 7(o)(2) may lapse.

The South Medford Interchange Improvement and Bear Creek I-5 Bridges Replacement Project includes a set of "conservation measures" designed to minimize take of ESA-listed species. These are described on pages 90 to 100 of the November 2003 BA. Specific measures for in-water and bank work, clearing and grubbing, bridge construction, stormwater management, erosion control, hazardous materials, and site-specific conservation and habitat remediation measures are also included.

NOAA Fisheries believes that the following reasonable and prudent measures, along with the conservation measures described in the BA, are necessary and appropriate to minimize the likelihood of take of ESA-listed fish resulting from implementation of this Opinion. These reasonable and prudent measures would also minimize adverse effects to designated critical habitat.

The FHWA shall:

1. Ensure completion of a comprehensive monitoring and reporting program to confirm this Opinion is meeting its objective of minimizing take from permitted activities.

2. Avoid or minimize incidental take from construction-related activities by applying permit conditions that require construction, operation and maintenance actions with minimum harm to aquatic and riparian systems.

3. Minimize the likelihood of incidental take from in-water work by ensuring that in-water work areas are isolated from flowing water.

4. Minimize the amount and extent of take from loss of instream habitat by implementing measures to minimize impacts to riparian and instream habitat, or where impacts are unavoidable, to replace or restore lost riparian and instream functions.

5. Minimize the amount and extent of take from stormwater impacts and altered stream hydraulics by implementing measures to treat and detain water and limit fill within the 100-year floodplain.

2.2.3 Terms and Conditions

To be exempt from the prohibitions of section 9 of the ESA, FHWA must comply with the following terms and conditions, which implement the reasonable and prudent measures described above for each category of activity.

1. To implement reasonable and prudent measure #1 (monitoring), the FHWA shall ensure that:

   a. Salvage notice. The following notice is included as a permit condition.

      > NOTICE. If a sick, injured or dead specimen of a threatened or endangered species is found, the finder must notify the Roseburg Field Office of NOAA Fisheries Law Enforcement at 541.957.3388. The finder must take care in handling of sick or injured specimens to ensure effective treatment, and in handling dead specimens to preserve biological material in the best possible condition for later analysis of cause of death. The finder also has the responsibility to carry out instructions provided by Law Enforcement to ensure that evidence intrinsic to the specimen is not disturbed unnecessarily.

   b. Written planning requirements. Before beginning any work below bankfull elevation,[1] the permittee will provide a copy of the written plans for site restoration, compensatory mitigation, pollution and erosion control, bridge demolition and stormwater management, to the Oregon Office of NOAA Fisheries at the following address. Plan requirements are described below.

      Director, Oregon State Habitat Office
      Habitat Conservation Division
      National Marine Fisheries Service
      Attn: 2002/01268
      525 NE Oregon Street
      Portland, OR 97232

[1] 'Bankfull elevation' means the bank height inundated by a 1.5 to 2-year average recurrence interval and may be estimated by morphological features such average bank height, scour lines and vegetation limits.

c. Implementation monitoring report required. The permittee submits an implementation monitoring report to the FHWA and to NOAA Fisheries, at the address below, within 120 days of completing all in-water work. The monitoring report will describe the permittee's success meeting his or her permit conditions.

d. Implementation monitoring report contents. Each monitoring report will include the following information.

i. Project identification
   (1) Permittee name, permit number, and project name.
   (2) Project location, including any compensatory mitigation site(s), by 5th field HUC and by latitude and longitude as determined from the appropriate USGS 7-minute quadrangle map.
   (3) FHWA contact person.
   (4) Starting and ending dates for work completed.

ii. Habitat conditions. Photos of habitat conditions at the project and any compensation site or sites, before, during, and after project completion.[2]
   (1) Include general views and close-ups showing details of the project and project area, including pre and post construction.
   (2) Label each photo with date, time, project name, photographer's name, and a comment about the subject.

iii. Site restoration and compensatory mitigation.
   (1) The name and address of the party(s) responsible for meeting each component of the site restoration and compensatory mitigation plan.
   (2) Performance standards for determining compliance.
   (3) Any other pertinent requirements such as financial assurances, real estate assurances, monitoring programs, and the provisions for short and long-term maintenance of the restoration or mitigation site.
   (4) Planting composition and density.
   (5) A plan to inspect and, if necessary, replace failed plantings for five years.
   (6) A provision for FHWA certification that all action necessary to carry out each component of the restoration or mitigation plan is completed, and that the performance standards are achieved.

iv. Project data.
   (1) Work cessation. Dates work ceased due to high flows, if any.
   (2) Fish screen. Evidence of compliance with NOAA Fisheries' fish screen criteria.

[2] Relevant habitat conditions may include characteristics of channels, eroding and stable streambanks in the project area, riparian vegetation, water quality, flows at base, bankfull and over-bankfull stages, and other visually discernable environmental conditions at the project area, and upstream and downstream of the project.

(3) Pollution control. A summary of pollution and erosion control inspections, including any erosion control failure, contaminant release, and correction effort.

(4) Pilings.
- (a) Number and type of pilings removed, including the number of pilings (if any) that broke during removal.
- (b) Number, type, and diameter of any pilings installed (*e.g.*, untreated wood, treated wood, hollow steel).
- (c) Description of how pilings were installed and any sound attenuation measures used.

(5) Site preparation.
- (a) Total cleared area – riparian and upland.
- (b) Total new impervious area.

(6) Isolation of in-water work area, capture and release.
- (a) Supervisory fish biologist – name and address.
- (b) Methods of work area isolation and take minimization.
- (c) Stream conditions before, during and within one week after completion of work area isolation.
- (d) Means of fish capture.
- (e) Number of fish captured by species.
- (f) Release site and condition of all fish released.
- (g) Any incidence of observed injury or mortality of listed species.

(7) Road construction, repairs and improvements. The justification for any new permanent road crossing design (*i.e.*, road realignment, full-span bridge, streambed simulation, or no-slope design culvert).

(8) Site restoration. Photo or other documentation that site restoration performance standards were met.

(9) Compensatory mitigation. The same elements apply as for monitoring site restoration.

e. Annual report on site restoration and compensatory mitigation monitoring. In addition to the 120-day implementation report, the permittee will submit an annual report to the FHWA and NOAA Fisheries by December 31 that includes the date of each visit to a restoration site or mitigation site, site conditions on that date, and any corrective action taken as a result of that visit. Reporting will continue from year to year until the FHWA certifies that site restoration or compensatory mitigation performance standards have been met.

f. Post construction impacts. The FHWA/ODOT shall assess the project's impacts, temporary and permanent, and compare them to the impacts assessed in the 2003 BA. This written assessment will be provided to NOAA Fisheries for review. If the actual impacts exceed those outlined in the BA then the FHWA/ODOT will provide additional mitigation to offset those impacts.

g. Reinitiation contact. To reinitiate consultation, contact the Oregon State Habitat Officeof NOAA Fisheries, at the address above.

2. To implement reasonable and prudent measure #2 (construction-related activities), the FHWA shall:

   a. Minimum area. Confine construction impacts to the minimum area necessary to complete the project.
   b. Preconstruction meeting. ODOT will arrange a pre-construction meeting with NOAA Fisheries and the contractor before commencement of project activities.
   c. Preconstruction activity. Complete the following actions before significant[3] alteration of the project area.
      i. Marking. Flag the boundaries of clearing limits associated with site access and construction to prevent ground disturbance of critical riparian vegetation, wetlands and other sensitive sites beyond the flagged boundary. Survey and mark the OHWM at the project site before commencement of work.
      ii. Emergency erosion controls. Ensure that the following materials for emergency erosion control are onsite.
         (1) A supply of sediment control materials (*e.g.*, silt fence, straw bales[4]).
         (2) An oil-absorbing, floating boom whenever surface water is present.
      iii. Temporary erosion controls. All temporary erosion controls will be in-place and appropriately installed downslope of project activity within the riparian area until site restoration is complete.
   d. Site preparation. Conserve native materials for site restoration.
      i. If possible, leave native materials where they are found.
      ii. If materials are moved, damaged, or destroyed, replace them with a functional equivalent during site restoration.
      iii. Stockpile any large wood,[5] native vegetation, weed-free topsoil, and native channel material displaced by construction for use during site restoration.
   e. Earthwork. Complete earthwork (including drilling, excavation, dredging, filling and compacting) as quickly as possible.
      i. Site stabilization. Stabilize all disturbed areas, including obliteration of temporary roads, following any break in work unless construction will resume within four days.

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[3] 'Significant' means an effect can be meaningfully measured, detected or evaluated.

[4] When available, certified weed-free straw or hay bales will be used to prevent introduction of noxious weeds.

[5] For purposes of this Opinion only, 'large wood' means a tree, log, or rootwad big enough to dissipate stream energy associated with high flows, capture bedload, stabilize streambanks, influence channel characteristics, and otherwise support aquatic habitat function, given the slope and bankfull channel width of the stream in which the wood occurs. See, Oregon Department of Forestry and Oregon Department of Fish and Wildlife, *A Guide to Placing Large Wood in Streams*, May 1995 (www.odf.state.or.us/FP/RefLibrary/LargeWoodPlacemntGuide5-95.doc).

ii. Source of materials. Obtain boulders, rock, woody materials and other natural construction materials used for the project outside the riparian area.

f. Cessation of work. Cease project operations under high flow conditions that may result in inundation of the project area, except for efforts to avoid or minimize resource damage.

g. Timing of in-water work. Complete all work below the OHWM between June 15 and September 15, unless otherwise approved in writing by NOAA Fisheries. ODOT shall notify NOAA Fisheries at least one week before the start of work below the OHWM.

h. Fish screens. Install, operate and maintain a fish screen according to NOAA Fisheries' fish screen criteria[6] on each water intake used for project construction, including pumps used to isolate an in-water work area. Screens for water diversions or intakes that will be used for irrigation, municipal or industrial purposes, or any use besides project construction are not authorized.

i. Fish passage. Provide passage for any adult or juvenile salmonid species present in the project area during construction, unless otherwise approved in writing by NOAA Fisheries, and after construction for the life of the project. Upstream passage is not required during construction if it did not previously exist.

j. Pollution and Erosion Control Plan. Prepare and carry out a written pollution and erosion control plan to prevent pollution caused by surveying or construction operations. Submit a copy of the written plan to the FHWA and to the Oregon State Habitat Office of NOAA Fisheries, at the address above, before beginning work below bankfull elevation.

i. Plan Contents. The pollution and erosion control plan will contain the pertinent elements listed below, and meet requirements of all applicable laws and regulations.

(1) The name and address of the party(s) responsible for accomplishment of the pollution and erosion control plan.

(2) Practices to prevent erosion and sedimentation associated with access roads, stream crossings, drilling sites, construction sites, borrow pit operations, haul roads, equipment and material storage sites, fueling operations, staging areas, and roads being decommissioned.

(3) Practices to confine, remove, and dispose of excess concrete, cement, grout, and other mortars or bonding agents, including measures for washout facilities.

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[6] National Marine Fisheries Service, *Juvenile Fish Screen Criteria* (revised February 16, 1995) and *Addendum: Juvenile Fish Screen Criteria for Pump Intakes* (May 9, 1996) (guidelines and criteria for migrant fish passage facilities, and new pump intakes and existing inadequate pump intake screens) (http://www.nwr.noaa.gov/1hydrop/hydroweb/ferc.htm).

(4) A description of any regulated or hazardous products or materials that will be used for the project, including procedures for inventory, storage, handling, and monitoring.

(5) A spill containment and control plan with notification procedures, specific cleanup and disposal instructions for different products, quick response containment and cleanup measures that will be available on the site, proposed methods for disposal of spilled materials, and employee training for spill containment.

(6) Practices to prevent construction debris from dropping into any stream or waterbody, and to remove any material that does drop with minimum disturbance to the streambed and water quality.

ii. Inspection of erosion controls. During construction, monitor instream turbidity and inspect all erosion controls daily during the rainy season and weekly during the dry season, or more often as necessary, to ensure the erosion controls are working adequately.[7]

(1) If monitoring or inspection shows that the erosion controls are ineffective, mobilize work crews immediately to make repairs, install replacements, or install additional controls as necessary.

(2) Remove sediment from erosion controls once it has reached 1/3 of the exposed height of the control.

k. Construction discharge water. Treat all discharge water created by construction (*e.g.*, concrete washout, pumping for work area isolation, vehicle wash water, drilling fluids) as follows.

i. Water quality. Design, build, and maintain facilities to collect and treat all construction discharge water, including any contaminated water produced by drilling, using the best available technology applicable to site conditions. Provide treatment to remove debris, nutrients, sediment, petroleum hydrocarbons, metals, and other pollutants likely to be present.

ii. Discharge velocity. If construction discharge water is released using an outfall or diffuser port, velocities may not exceed 4 feet per second, and the maximum size of any aperture may not exceed one inch.

iii. Pollutants. Do not allow pollutants including green concrete, contaminated water, silt, welding slag, sandblasting abrasive, or grout cured less than 24 hours to contact any wetland or the OHWM.

l. Piling removal. If a temporary or permanent piling will be removed, the following conditions apply.

i. Dislodge the piling with a vibratory hammer.

ii. Once loose, place the piling onto an appropriate dry storage site.

iii. Fill the holes left by each piling with clean, native sediments.

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[7] 'Working adequately' means that project activities do not increase ambient stream turbidity by more than 10% above background 100 feet below the discharge, when measured relative to a control point immediately upstream of the turbidity causing activity.

m. Temporary access roads. All temporary access roads will be constructed as follows.

i. Existing ways. Use existing roadways and travel paths whenever possible, unless construction of a new way would result in less habitat take.

ii. Steep slopes. Temporary roads built mid-slope or on slopes steeper than 30% are not authorized.

iii. Minimizing soil disturbance and compaction. Minimize soil disturbance and compaction whenever a new temporary road is necessary within 150 feet[8] of a stream, waterbody, or wetland by clearing vegetation to ground level and placing clean gravel over geotextile fabric, unless otherwise approved in writing by NOAA Fisheries.

iv. Temporary stream crossings.

(1) Minimize the number of temporary stream crossings.

(2) Design temporary road crossings as follows.

(a) Survey and map any potential spawning habitat within 300 feet downstream of a proposed crossing.

(b) Do not place a stream crossing at known or suspected spawning areas, or within 300 feet upstream of such areas if spawning areas may be affected.

(c) Design the crossing to provide for foreseeable risks (*e.g.*, flooding and associated bedload and debris, to prevent the diversion of streamflow out of the channel and down the road if the crossing fails).

(d) Vehicles and machinery will cross riparian areas and streams at right angles to the main channel wherever possible.

v. Obliteration. When the project is complete, obliterate all temporary access roads that will not be in footprint of a new bridge or other permanent structure, stabilize the soil, and revegetate the site. Abandon and restore temporary roads in wet or flooded areas by the end of the in-water work period.

n. Bridge Demolition. A bridge demolition plan must be approved by NOAA Fisheries before removal of the existing structures.

o. Bridge Containment. The work bridges will have containment measures in place that minimizes any potential of petrochemicals or hazardous materials from entering the river.

i. The decking of the work bridge shall be constructed to self-contain petrochemicals and hazardous materials.

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[8] Distances from a stream or waterbody are measured horizontally from, and perpendicular to, the bankfull elevation, the edge of the channel migration zone, or the edge of any associated wetland, whichever is greater. 'Channel migration zone' means the area defined by the lateral extent of likely movement along a stream reach as shown by evidence of active stream channel movement over the past 100 years (*e.g.*, alluvial fans or floodplains formed where the channel gradient decreases, the valley abruptly widens, or at the confluence of larger streams).

ii. The work bridges and the containment structure will be maintained to preserve containment integrity throughout the term of the project.

p. Heavy Equipment. Restrict use of heavy equipment as follows.

i. Choice of equipment. When heavy equipment will be used, the equipment selected will have the least adverse effects on the environment (*e.g.*, minimally-sized, low ground pressure equipment).

ii. Vehicle and material staging. Store construction materials, and fuel, operate, maintain and store vehicles as follows.

(1) To reduce the staging area and potential for contamination, ensure that only enough supplies and equipment to complete a specific job will be stored on site.

(2) Complete vehicle staging, cleaning, maintenance, refueling, and fuel storage in a vehicle staging area placed 150 feet or more from any stream, waterbody, or wetland, unless otherwise approved in writing by NOAA Fisheries, except as stated below.

(a) Fuel storage locations within 150 feet of the OHWM shall have containment measures in place that meet or exceed 100% containment.

(b) No auxiliary fuel tanks are stored within 150 feet of the OHWM.

(3) No hazardous materials will be stored on the work bridge.

(4) Hazardous materials stored within 150 feet of the OHWM shall have containment measures in place that meet or exceed 100% containment.

(5) Inspect all vehicles operated within 150 feet of any stream, waterbody, or wetland daily for fluid leaks before leaving the vehicle staging area. Repair any leaks detected in the vehicle staging area before the vehicle resumes operation. Document inspections in a record that is available for review on request by FHWA or NOAA Fisheries.

(6) Before operations begin and as often as necessary during operation, steam-clean all equipment that will be used below bankfull elevation until all visible external oil, grease, mud, and other visible contaminates are removed.

(7) Diaper all stationary power equipment (*e.g.*, generators, cranes, stationary drilling equipment) operated within 150 feet of any stream, waterbody or wetland to prevent leaks, unless suitable containment is provided to prevent potential spills from entering any stream or waterbody.

q. Site restoration. Prepare and carry out a written site restoration plan as necessary to ensure that all streambanks, soils, and vegetation disturbed by the project are cleaned up and restored as follows. Submit a copy of the written site restoration plan to the FHWA and to the Oregon State Habitat Office of NOAA Fisheries, at the address above, before beginning work below bankfull elevation.

i. General considerations.

(1) Restoration goal. The goal of site restoration is renewal of habitat access, water quality, production of habitat elements (*e.g.*, large woody debris), channel conditions, flows, watershed conditions, and other ecosystem processes that form and maintain productive fish habitats.

(2) Streambank shaping. Restore damaged streambanks to a natural slope, pattern, and profile suitable for establishment of permanent woody vegetation, unless precluded by pre-project conditions (*e.g.*, a natural rock wall).

(3) Revegetation. Replant area requiring revegetation before the first April 15 following construction. Use a diverse assemblage of species native to the project area or region, including grasses, forbs, shrubs, and trees. Noxious or invasive species may not be used.

(4) Pesticides. Take of ESA-listed species caused by any aspect of pesticide use is not included in the exemption to the ESA take prohibitions provided by this incidental take statement. Pesticide use must be evaluated in an individual consultation, although mechanical or other methods may be used to control weeds and unwanted vegetation.

(5) Fertilizer. Do not apply surface fertilizer within 50 feet of any stream channel.

(6) Fencing. Install fencing as necessary to prevent access to revegetated sites by livestock or unauthorized persons.

ii. Plan contents. Include each of the following elements.

(1) Baseline information. This information may be obtained from existing sources (*e.g.*, land use plans, watershed analyses, subbasin plans), where available.

(a) A functional assessment of adverse effects, *i.e.*, the location, extent, and function of the riparian and aquatic resources that will be adversely affected by construction and operation of the project.

(b) The location and extent of resources surrounding the restoration site, including historic and existing conditions.

(2) Goals and objectives. Restoration goals and objectives that describe the extent of site restoration necessary to offset adverse effects of the project, by aquatic resource type.

(3) Performance standards. Use these standards to help design the site restoration plan and to assess whether the restoration goal is met. While no single criterion is sufficient to measure success, the intent is that these features should be present within reasonable limits of natural and management variation.

(a) Bare soil spaces are small and well-dispersed.

(b) Soil movement, such as active rills or gullies and soil deposition around plants or in small basins, is absent or slight and local.
(c) If areas with past erosion are present, they are completely stabilized and healed.
(d) Plant litter is well-distributed and effective in protecting the soil with few or no litter dams present.
(e) Native woody and herbaceous vegetation, and germination microsites, are present and well-distributed across the site.
(f) Vegetation structure is resulting in rooting throughout the available soil profile.
(g) Plants have normal, vigorous growth form, and a high probability of remaining vigorous, healthy, and dominant over undesired competing vegetation.
(h) High-impact conditions confined to small areas necessary access or other special management situations.
(i) Streambanks have less than 5% exposed soils with margins anchored by deeply-rooted vegetation or coarse-grained alluvial debris.
(j) Few upland plants are in valley bottom locations, and a continuous corridor of shrubs and trees provide shade for the entire streambank.

(4) Work plan. Include a written work plan as part of the site restoration plan with sufficient detail to include a description of the following elements, as applicable.
(a) Boundaries for the restoration area.
(b) Restoration methods, timing, and sequence.
(c) Water supply source, if necessary.
(d) Woody native vegetation appropriate to the restoration site.[9] This must be a diverse assemblage of species that are native to the project area or region, including grasses, forbs, shrubs, and trees. This may include allowances for natural regeneration from an existing seed bank or planting.
(e) A plan to control exotic invasive vegetation.
(f) Elevation(s) and slope(s) of the restoration area to ensure they conform with required elevation and hydrologic requirements of target plant species.
(g) Geomorphology and habitat features of stream or other open water.
(h) Site management and maintenance requirements.

(5) Five-year monitoring and maintenance plan.

[9] Use references sites to select vegetation for the mitigation site whenever feasible. Historic reconstruction, vegetation models, or other ecologically-based methods may also be used as appropriate.

(a) A written schedule to visit the restoration site annually for five years or longer as necessary to confirm that the performance standards are achieved. Despite the initial five-year planning period, site visits and monitoring will continue from year-to-year until the FHWA certifies that site restoration performance standards have been met.

(b) During each visit, inspect for and correct any factors that may prevent attainment of performance standards (*e.g.*, low plant survival, invasive species, wildlife damage, drought).

(c) Keep a written record to document the date of each visit, site conditions and any corrective actions taken.

3. To implement reasonable and prudent measure #3 (isolation of in-water work area) the FHWA shall ensure that:

a. Work area isolation. During in-water work (work within the OHWM), if the project involves either significant channel disturbance or use of equipment within the wetted channel, ensure that the work area is well isolated from the active flowing stream within a coffer dam (constructed of sand bags, sheet pilings, inflatable bags, *etc.*) or similar structure, to minimize the potential for sediment entrainment. Furthermore, no ground- or substrate-disturbing action will occur within the OHWM 150 feet upstream of potential spawning habitat as measured at the thalweg without isolation of the work area from flowing waters. After the coffer dam is in place, any fish trapped in the isolation pool will be removed by a permitted ODOT and/or ODFW biologist before de-watering, using ODFW-approved methods.

i. Coffer dams. All coffer dams will be of sufficient height to not be inundated during high flows.

ii. Water intake structures. Any water intake structure authorized under this Opinion must have a fish screen installed, and operated and maintained in accordance with NOAA Fisheries' fish screen criteria.

(1) Water pumped from the work isolation area will be discharged into an upland area providing over-ground flow before returning to the creek. Discharge will occur so that it does not cause erosion.

(2) Discharges into potential fish spawning areas or areas with submerged vegetation are prohibited.

iii. Work Area Isolation. A work area isolation plan must be approved by NOAA Fisheries before in-water work.

iv. Fish Salvage. Before and intermittently during pumping to isolate an in-water work area, attempt to capture and release fish from the isolated area using trapping, seining, electrofishing, or other methods as are prudent to minimize risk of injury.

(1) The entire capture and release operation must be conducted or supervised by a fishery biologist experienced with work area

isolation and competent to ensure the safe handling of all ESA-listed fish.

(2) Do not use electrofishing if water temperatures exceed 18°C.

(3) If electrofishing equipment is used to capture fish, comply with NOAA Fisheries' electrofishing guidelines.[10]

(4) Handle ESA-listed fish with extreme care, keeping fish in water to the maximum extent possible during seining and transfer procedures to prevent the added stress of out-of-water handling.

(5) Transport fish in aerated buckets or tanks.

(6) Release fish into a safe release site as quickly as possible, and as near as possible to capture sites.

(7) Do not transfer ESA-listed fish to anyone except NOAA Fisheries personnel, unless otherwise approved in writing by NOAA Fisheries.

(8) Obtain all other Federal, state, and local permits necessary to conduct the capture and release activity.

(9) Allow NOAA Fisheries or its designated representative to accompany the capture team during the capture and release activity, and to inspect the team's capture and release records and facilities.

4. To implement reasonable and prudent measure #4 (minimize loss of instream habitat), FHWA shall ensure that:

a. The distance between existing bridge approach fill and the 100-year floodplain or OHWM (whichever is closer to the existing fill) will not be reduced.

b. The amount of fill within the floodplain will be minimized.

c. Boundaries of the clearing limits associated with site access and construction will be flagged to prevent ground disturbance of riparian vegetation, wetlands, and other sensitive sites beyond the flagged boundary.

d. During excavation, native streambed material will be stockpiled out of the two-year floodplain for later use in back-filling the trenches used to construct coffer dams.

e. During project design ODOT will work to minimize the amount of riprap used. Where riprap is necessary, only clean, non-erodible, upland angular rock of sufficient size for long-term armoring will be employed. Riprap will not be "end-dumped" within the wetted channel.

f. Alteration or disturbance of streambanks and existing riparian vegetation will be minimized. Where bank work is necessary, bank protection material shall be placed to maintain normal waterway configuration whenever possible.

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[10] National Marine Fisheries Service, *Backpack Electrofishing Guidelines* (December 1998) (http://www.nwr.noaa.gov/1salmon/salmesa/pubs/electrog.pdf).

g. Measures will be taken to prevent any debris from falling within the boundaries of the OHWM. Any material that falls within this area will be removed in a manner that has a minimum impact to the riparian area, streambed, and water quality.

5. To implement reasonable and prudent measure # 5 (new impervious surface and stormwater management), the FHWA shall ensure that:

a. All stormwater runoff from any road or bridge built pursuant to a permit issued under this Opinion must be managed to ensure that it will not result in a change in the existing hydraulic conditions or an increase of pollutants to the receiving water.
b. Any project that will produce new surfaces or land use conversions that retard the entry of water into the soil must control the quantity and quality of the resulting stormwater runoff for the life of the project.
c. Stormwater must be infiltrated or dispersed onsite to the maximum extent possible without causing flooding or erosion impacts.
d. When stormwater runoff must be discharged into a freshwater system, the following requirements apply.
    i. The area must be drained by a conveyance system comprised entirely of manufactured elements (*e.g.*, pipes, ditches, outfall protection) that extends to the OHWM of the receiving water.
    ii. Any erodible elements of this system must be adequately stabilized to prevent erosion.
    iii. Surface water from the area must not be diverted from or increased to an existing wetland, stream, or near-shore habitat sufficient to cause a significant adverse effect.
    iv. Runoff treatment facilities must be designed, built and maintained to collect runoff from the project site using the best available technology applicable to the site conditions. Treatment must be provided to remove debris, nutrients, sediment, petroleum hydrocarbons, metals, and other pollutants likely to be present.

3. MAGNUSON-STEVENS FISHERY CONSERVATION AND MANAGEMENT ACT

3.1 Background

The MSA, as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-267), established procedures designed to identify, conserve, and enhance essential fish habitat (EFH) for those species regulated under a Federal fisheries management plan. Pursuant to the MSA:

- Federal agencies must consult with NOAA Fisheries on all actions, or proposed actions, authorized, funded, or undertaken by the agency, that may adversely affect EFH (§305(b)(2)).

- NOAA Fisheries must provide conservation recommendations for any Federal or state action that would adversely affect EFH (§305(b)(4)(A)).

- Federal agencies must provide a detailed response in writing to NOAA Fisheries within 30 days after receiving EFH conservation recommendations. The response must include a description of measures proposed by the agency for avoiding, mitigating, or offsetting the impact of the activity on EFH. In the case of a response that is inconsistent with NOAA Fisheries EFH conservation recommendations, the Federal agency must explain its reasons for not following the recommendations (§305(b)(4)(B)).

EFH means those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity (MSA §3). For the purpose of interpreting this definition of EFH: "Waters" include aquatic areas and their associated physical, chemical, and biological properties that are used by fish and may include aquatic areas historically used by fish where appropriate; "substrate" includes sediment, hard bottom, structures underlying the waters, and associated biological communities; necessary means the habitat required to support a sustainable fishery and the managed species' contribution to a healthy ecosystem; and "spawning, breeding, feeding, or growth to maturity" covers a species' full life cycle (50 CFR 600.10). Adverse effect means any impact which reduces quality and/or quantity of EFH, and may include direct (*e.g.*, contamination or physical disruption), indirect (*e.g.*, loss of prey or reduction in species fecundity), site-specific, or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions (50 CFR 600.810).

EFH consultation with NOAA Fisheries is required regarding any Federal agency action that may adversely affect EFH, including actions that occur outside EFH, such as certain upstream and upslope activities.

The objectives of this EFH consultation are to determine whether the proposed action would adversely affect designated EFH and to recommend conservation measures to avoid, minimize, or otherwise offset potential adverse effects to EFH.

3.2 Identification of EFH

Pursuant to the MSA, the Pacific Fisheries Management Council (PFMC) has designated EFH for Federally-managed fisheries within the waters of Washington, Oregon, and California. Designated EFH for groundfish and coastal pelagic species encompasses all waters from the mean high water line, and upriver extent of saltwater intrusion in river mouths, along the coasts of Washington, Oregon and California, seaward to the boundary of the U.S. exclusive economic zone (370.4 km) (PFMC 1998a, 1998b). Freshwater EFH for Pacific salmon includes all those streams, lakes, ponds, wetlands, and other waterbodies currently, or historically accessible to

salmon in Washington, Oregon, Idaho, and California, except areas upstream of certain impassable artificial barriers (as identified by the PFMC 1999), and longstanding, naturally-impassable barriers (*i.e.*, natural waterfalls in existence for several hundred years) (PFMC 1999). In estuarine and marine areas, designated salmon EFH extends from the nearshore and tidal submerged environments within state territorial waters out to the full extent of the exclusive economic zone (370.4 km) offshore of Washington, Oregon, and California north of Point Conception to the Canadian border (PFMC 1999).

Detailed descriptions and identifications of EFH are contained in the fishery management plans for groundfish (PFMC 1998a), coastal pelagic species (PFMC 1998b), and Pacific salmon (PFMC 1999). Casillas *et al.* (1998) provides additional detail on the groundfish EFH habitat complexes. Assessment of the potential adverse effects to these species' EFH from the proposed action is based, in part, on these descriptions and on information provided by the Corps.

3.3 Proposed Action

The proposed action is detailed above in section 1.2 of this document. For the purposes of this EFH consultation, the action area is defined as the streambeds, streambanks and riparian corridors of Bear, Larson, and Lazy Creeks, extending to the upstream project disturbance limits and downstream to the confluence of the Rogue River. This area has been designated as EFH for various life stages of chinook salmon and coho salmon.

3.4 Effects of Proposed Action

As described in detail in section 2.1.3 of this document, the proposed activities may result in short-term adverse effects to water quality (sediment, chemical contamination, riparian vegetation removal). NOAA Fisheries expects short-term adverse effects from increases in turbidity and the potential for chemical contamination within the action area. NOAA Fisheries expects long-term beneficial effects from decreased constriction, improved hydraulic conditions and riparian function of Bear, Larson, and Lazy Creeks as a result of the proposed projects.

3.5 Conclusion

The proposed action will adversely affect the EFH for chinook and coho salmon.

3.6 EFH Conservation Recommendations

Pursuant to section 305(b)(4)(A) of the MSA, NOAA Fisheries is required to provide EFH conservation recommendations for any Federal or state agency action that would adversely affect EFH. The conservation measures proposed for the project by the FHWA, all of the reasonable and prudent measures and the terms and conditions contained in sections 2.2.2 and 2.2.3, respectively, are applicable to salmon EFH. Therefore, NOAA Fisheries incorporates each of those measures here as EFH conservation recommendations.

3.7 Statutory Response Requirement

Please note that the MSA (section 305(b)) and 50 CFR 600.920(j) requires the Federal agency to provide a written response to NOAA Fisheries after receiving EFH conservation recommendations within 30 days of its receipt of this letter. This response must include a description of measures proposed by the agency to avoid, minimize, mitigate or offset the adverse impacts of the activity on EFH. If the response is inconsistent with a conservation recommendation from NOAA Fisheries, the agency must explain its reasons for not following the recommendation.

3.8 Supplemental Consultation

The FHWA must reinitiate EFH consultation with NOAA Fisheries if either action is substantially revised or new information becomes available that affects the basis for NOAA Fisheries' EFH conservation recommendations (50 CFR 600.920).

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